

IN THE SPECIFICATION

Please amend the paragraph beginning at page 3, line 1, as follows:

A²
The piezoelectric device is usually made from PZT (lead zirconate titanate). The PZT contains the lead that is a harmful substance and thus needs to be withdrawn after the piezoelectric device is used up. The withdrawal of the lead requires cutting the housing because the upper end of the housing is, as described above, sealed by resin. It is, thus, quite ~~inconvenience~~ inconvenient. Further, there is a problem that parts cannot be removed from the housing after assembly thereof, therefore, it is impossible to replace the parts and adjust characteristics of the fuel injection finely.

Please amend the paragraph beginning at page 4, line 6, as follows:

A³
~~It is another~~ Other objects of the invention are to provide an improved structure of a fuel injector which is easy to install, to ~~and~~ remove a piezoelectric actuator in and from the fuel injector, and to adjust fuel injection characteristics finely ~~and~~ which allows an overall size of the fuel injector to be decreased.

Please amend the paragraph beginning at page 5, line 17, as follows:

A⁴
The connector may include a connector body which is coupled integrally with the actuator and ~~has~~ retains therein leads connecting with the actuator in an electrically insulating fashion.

Please amend the paragraph beginning at page 6, line 20, as follows:

The electrically deformable element may be implemented by a piezoelectric device designed to expand and contract in response to the input of the electric signal.

The piezoelectric device is made up of a stack of piezoelectric layers and electrode layers each interposed between an adjacent two of the piezoelectric layers.

Please amend the paragraph beginning at page 8, line 16, as follows:

The electrically deformable element may be implemented by a piezoelectric device designed to expand and contract in response to the input of the electric signal. The piezoelectric device is made up of a stack of piezoelectric layers and electrode layers each interposed between an adjacent two of the piezoelectric layers.

Please amend the paragraph beginning at page 9, line 17, as follows:

The end of the piston coupled to the electrically deformable element is disposed within the cylindrical housing. If a maximum clearance between the end of the piston and an inner wall of the cylindrical housing is defined as d , and a minimum clearance between the piston and an inner wall of the extensible member is defined as e , a relation of $d < e$ is satisfied.

Please amend the paragraph beginning at page 10, line 3, as follows:

The electrically deformable element may be implemented by a piezoelectric device designed to expand and contract in response to the input of the electric signal. The piezoelectric device is made up of a stack of piezoelectric layers and electrode layers

AS
each interposed between an adjacent two of the piezoelectric layers.

Please amend the paragraph beginning at page 13, line 5, as follows:

AG
The fuel injector 100 includes, as shown in Fig. 1, an upper housing 2₁ in which an actuator 1 is disposed₁ and a lower housing 3₁ which is jointed to the upper housing 2 in alignment therewith₁ and an ~~has a~~ injection nozzle 4.

Please amend the paragraph beginning at page 15, line 18, as follows:

AD
The connector 7 has, as clearly shown in Fig. 3, a cylindrical connector body 71 welded to an upper open end of the housing 11. The leads 72a and 72b extend through vertical holes (not shown) formed in the connector body 71 and connect with a connector terminal or plug 73 disposed on the connector body 71. The leads 72a and 72b are hermetically sealed in the connector body 71 for providing for airtightness and electric insulation. The connector body 71 has a flange 75 ~~74~~ on which a retaining nut 74 is disposed around the periphery of the connector body 71. The retaining nut 74 is, as shown in Fig. 1, screwed into an upper end of the upper housing 2 to install the connector 7 in the upper housing 2. The plug 73 of the connector 7 is held at an interval a of 5 to 10mm away from an upper end of the retaining nut 74 so as to expose an upper portion of the connector body 7 outside the retaining nut 74 for facilitating, as will be described later in detail, ease of positioning the actuator 1 within the vertical chamber 21.

Please amend the paragraph beginning at page 16, line 21, as follows:

AD
The diaphragm 66 is elastically deformed by vertical movement of the rod 64. Specifically, when energized, the piezoelectric device 61 expands vertically and pushes

the piston 62 downward, as viewed in Fig. 3, to project the diaphragm 66 downward through the rod 64. This causes the large-diameter piston 52 disposed, as shown in Fig. 1, in the upper housing 2 in contact with the diaphragm 66 to move downward. Specifically, a stroke of the piston 62 produced by the expansion of the piezoelectric device 61 is transmitted through the diaphragm 66 to the large-diameter piston 52. The large-diameter piston 52 is installed coaxially with the vertical chamber 21 of the upper housing 2 so as to be slidable within the upper housing 2. The downward movement of the large-diameter piston 52 is transformed into a rise in pressure in the pressure chamber 53, as shown in Fig. 21, defined between the upper and lower housings 2 and 3, which is, in turn, causes the small-diameter piston 54 to be shifted downward. The small-diameter piston 54 is disposed slidably within a cylindrical chamber 32 formed in the lower housing 3 coaxially with the fuel injector 100. The vertical movement of the piezoelectric device 61 (i.e., the stroke of the large-diameter piston 52) is amplified as a function of a difference in diameter between the large-diameter piston 52 and the small-diameter piston 54.

Please amend the paragraph beginning at page 20, line 11, as follows:

A bellows 11b is coupled with the lower end of the housing 121. The bellows 11b is closed at a lower opening thereof by a diaphragm 11a. The diaphragm 11a is in contact with the bottom of the rod 64 of the piston 62. The bellows 11b has substantially the same length as that of the rod 64 and urges the piston 62 into constant engagement with the bottom of the piezoelectric device 61. The downward movement of the rod 64 will cause the bellows 11b to expand, so that the diaphragm 11a~~11b~~ moves downward.

Please amend the paragraph beginning at page 22, line 21, as follows:

A13
The installation of the actuator 1 in the upper housing 2 is initiated without fitting the plug 73' on the connector body 71'. Specifically, the actuator 1 is first inserted into the cylinder 2b of the upper housing 2, after which the head 2a is coupled to the connector body 71' in a screw fashion. The head 2a has formed in a bottom thereof an annular chamber 26 which has a threaded inner wall. The cylinder 2b has an upper flange whose peripheral wall is threaded and engages the inner wall of the annular chamber 26. The connector body 71' is, as described above, retained in the cylindrical chamber 21' through the shim 13. Finally, the plug 73' ~~72'~~ is fitted on the connector body 71' in a desired orientation.

Please amend the paragraph beginning at page 32, line 23, as follows:

A14
Fig. 17 shows the actuator 1 according to the tenth embodiment of the invention which is different from the above embodiments in that the movement of the piezoelectric device 61 is transmitted directly to the large-diameter piston 52 ~~2~~ without use of a piston.